



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

half of a tone higher with four drops, and to a whole tone higher with only one drop, while at a greater interval the reaction entirely vanishes. At a third or an octave he again reacts.

The method was also applied to optic stimuli and tests made of the dog's ability to discriminate form and color. A dog which six months earlier had been used for other optical experiments but had not been experimented upon in the meantime was shown several times daily, when fed, a shining white circle of about 15 cm. diameter, at a distance of 120 cm. This was continued for a month. After the association was thus established he was occasionally shown the circle without being fed, though the regular association with feeding was continued. He was also on the thirty-sixth day, without being fed, shown a square and later a pentagon. At first there was but a slight difference in the reaction to the square and the circle when shown without feeding, but gradually the reaction to the square lessened and on the fourth day practically disappeared, and the reflex to the pentagon which had been shown only twice, also disappeared at the same time. A heptagon was then used and the number of days required for the disappearance of this reflex was considerably greater than in the case of the square and pentagon. When, however, a hexagon was used there was, from the first, no reaction. In this case, the dog seemed without previous experience to refer this form to the no-food group of figures. Pawlow states that he has experimentally established by this method the capability of color discrimination in dogs. Nicolai, however, obtained only negative results in his experiments carried out in the Berlin Physiological Institute, the dogs becoming easily confused when red and green of different degrees of brightness were shown them. He would not, however, on the ground of these experiments dispute Pawlow's results, since there are numerous possibilities of error.

Other experiments have established that the analytical capability of the dog may be heightened in the case of sensations that can be measured. In these experiments temperature and mechanical stimuli were used, *e. g.*, a quick rubbing of the skin (60 strokes per minute causes a larger quantity of saliva to be secreted than a slow stroking (20 strokes per minute). This holds good not only for mechanical and temperature but also for optic and acoustic stimuli. Comparative experiments with the different senses have also been made, *e. g.*, with temperature, mechanical and optical stimuli from which it appears that the tickle stimulus is much stronger and has more significance for the dog's existence than temperature stimuli; also that mechanical are stronger than optical stimuli. Furthermore, newly introduced stimuli may have an inhibitory influence. When, for instance, a new stimulus of the same kind as one already acting is introduced there is an inhibition of the first, *e. g.*, reaction to one odor may be inhibited by the introduction of a second odor, or the introduction of a tone simultaneously with one already acting as stimulus may inhibit the reaction.

The possibility and advantages of this method are easy to discern and Pawlow has made a most important contribution to comparative psychology, for the introduction to which psychologists must be grateful to Dr. Nicolai, as the Russian reports are inaccessible to most readers.

THEODATE L. SMITH.

The Dancing Mouse, by ROBERT M. YERKES, PH. D. The Macmillan Company, New York, 1907. pp. 290.

Animal psychology is rapidly passing from the stage of chance observation to the stage of careful experimental investigation. Dr. Yerkes's book is an unusually valuable contribution, and may well

serve as a model for similar studies of other animals. The value of the book consists as much in developing and demonstrating experimental methods as in the results and conclusions reached concerning the dancing mouse. The entire work is characterized by exceptional care and accuracy in planning the tests and interpreting the results.

The first four chapters deal with the history, care, and general behavior of the dancer. "The three most clearly distinguishable forms of dance are (1), movement in circles with all the feet close together under the body, (2) movement in circles, which vary in diameter from 5 cm. to 30 cm., with the feet spread widely, and (3) movement now to the right, now to the left, in figure-eights." "There are three kinds of dancers: those which whirl almost uniformly toward the right, those which whirl just as uniformly toward the left, and those which whirl about as frequently in one direction as in the other."

The next two chapters are concerned with hearing. Previous investigators disagree as to whether the dancing mouse can hear. Yerkes shows by direct and indirect tests that adults, *i. e.*, mice more than five weeks old, are totally deaf, while some of the young give evidence of ability to hear from the 13th to the 19th day of life.

Chapters VII to XI deal with sight. The experiments on this sense are particularly valuable because of the new devices and methods employed. In regard to brightness-vision, the tests demonstrate that the dancer perceives a difference between black and white, and even between shades of gray. An attempt was then made to determine whether brightness discrimination obeyed Weber's law. Only one animal was used here whose ability to discriminate brightness differences gradually improved until a difference of one-tenth seemed distinguishable in the case of three standards of brightness. Weber's law probably holds. More data are needed, and, as the author states, the study of this problem is merely begun.

The experiments on color vision emphasize the importance of check tests and of eliminating brightness from color discrimination. "Although the dancer does not possess a color sense like ours, it probably discriminates the colors of the red end of the spectrum from those of other regions by difference in the stimulating value of light of different wave lengths, that such specific stimulating value is radically different in nature from the value of different wave lengths for the human eye, and that the red of the spectrum has a very low stimulating value for the dancer."

Chapters XII to XVI deal with the educability of the dancing mouse. The experiments were made according to three methods, the problem method, the labyrinth method, and the discrimination method. These are critically compared in regard to their merits in the investigation of various problems. The main results are that the dancer "does not learn by imitation to any considerable extent," and "that it is aided by being put through an act." Training in one form of labyrinth facilitates the learning of other labyrinths.

Chapter XVII is devoted to differences in behavior. "The race exhibits individual differences in discriminating sensitiveness to a far greater extent than do most mammals."

In the last chapter, dealing with the inheritance of forms of behavior, the conclusion is reached that there is no evidence of the inheritance of the individually acquired habit of discrimination between black and white. The experiments were carried through four generations only.

DANIEL STARCH.

Wellesley College.